

**UNITED STATES MARINE CORPS**  
Utilities Instruction Company  
Marine Corps Engineer School  
PSC Box 20069  
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U-08G03  
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STUDENT HANDOUT

REPAIR TACTICAL QUIET GENERATOR

1. **Terminal Learning Objective:** Provided a schematic, a faulty generator set electrical system, and applicable tools and test equipment, with the aid of references, repair the generator set electrical system so that it functions properly in accordance with the appropriate equipment technical manual. (1142.01.03)

2. **Enabling Learning Objective:** Given a schematic, a faulty Tactical Quiet Generator set electrical system, and applicable tools and test equipment, with the aid of references, identify the malfunction in accordance with the appropriate equipment technical manual.  
(1142.01.03ci)

**BODY :**

1. **SAFETY PROCEDURES.**

a. **Personal:** Ensure that you remove all conductors from your body.

(1) Tools which will be utilized during the exam must be accounted for at all times.

(2) Protective clothing and equipment will be required while working on storage batteries.

b. **Equipment:** Prior to starting your generator you are required to perform a 360. During this visual inspection, be as specially watchful for components that have come loose or fasteners that are not tight.

(1) Taking care of the environment is every Marines responsibility. During your normal duties as an 1142 you will handle many hazardous materials and hazardous waste. Some examples of these items are: empty aerosol cans, used oil and fuel filters, dirty engine oil, used antifreeze, and dirty dry sweep. While these are not the only hazardous materials and waste, before you throw anything away, make sure you ask an instructor how any materials are disposed of.

(2) Hot refueling of generators while they are operating poses a safety hazard and shall not be attempted. Hot engine surfaces and sparks produced from the engine and generator circuitry are possible sources of ignition. Severe injury, and/or damage to equipment may result.

(3) Do not operate engine generator set unless ground terminal stud has been connected to a suitable ground.

(4) Lethal voltages are present at the load terminal board of the generator set during operation. Do not attempt to connect or disconnect load leads while the generator set is operating. Do not attempt to connect or disconnect load leads with the generator set shut down and the load connected to another power source, or while the generator set is paralleled to another set which is operating.

(5) To avoid accidental engine cranking or startup during trouble shooting, set DC circuit breaker switch to Open position and disconnect cable from battery negative terminal prior to servicing the engine generator set. Reconnect cable at completion of service procedures.

(6) Scalding can result from steam in the coolant system escaping when the radiator cap is removed. **Always** allow coolant to cool and remove the radiator cap slowly to permit any pressure to escape.

## 2. SAFETY RULES.

a. Absolutely NO horseplay will be tolerated at any time in or around the generator shed.

b. Wear hearing protection at all times when any generator is running, even if yours is not running.

c. Always perform a complete 360, pre-operation check before each attempt to start the generator. Ensure that all plugs have been reconnected and that no one is still working on the generator.

d. Do not lay tools down on top of or inside of the generator.

e. Keep hands and all body parts away from moving parts while the engine is running.

f. Smoke only in designated areas and only during breaks.

g. Clean up all fuel and oil spills promptly.

h. Observe and follow all warnings and cautions found in the technical manuals.

## 3. RESPONSIBILITIES OF THE STUDENT.

a. Safety is the responsibility of all. If you see an unsafe action or condition report it immediately to an instructor.

b. Tool sets will be inventoried and issued at the beginning of the practical application portion of this lesson. Upon issue the control and upkeep of the tool set and all tools it contains is the

responsibility of the student. If a tool breaks, return it to the instructor. Any tools lost will be replaced by the student.

c. It is the student's responsibility for the cleanliness of the generator shed. Keep your own work area clean and if you see anything that needs to be cleaned up, clean it up. In case of fuel or oil spills inform instructor immediately.

d. No student will leave the generator shed without checking out with an instructor.

### 1. VOLTAGE CHECKS.

a. Set multimeter on proper setting (DC voltage). Put the red lead on terminal A of K21 and the black lead on terminal B.

b. Place S1 in the start position. The multimeter indication should be 24 VDC.

c. Now pull the K21 out, and put the red lead on terminal A of K21 and the black lead on terminal B.

d. Place S1 in the start position. The multimeter indication should be 0 VDC.

### 2. RESISTANCE CHECKS .

a. Set multimeter on proper setting (resistance). Pull out K21 relay.

b. Place the red lead on terminal A and the black lead on terminal B.

c. The multimeter indication should be between 450 and 520 ohms.

### 3. OPENS.

a. Set multimeter on proper setting (DC voltage). Place the red lead on K15 terminal 8 and the black lead on ground. With S1 in the start position you should read 24VDC.

b. If you read 24VDC, then you should put the red lead on K15 terminal 5 and black lead on ground.

c. If you read 24VDC then you know that the coil is working fine and those contacts are closing; **however**, if you read 0VDC then you have an open.

REFERENCES: FM 11-60  
TM 09249A/09246A-10/